## **CLAIMS:**

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- 1. An isolated STEAR 2 protein having an amino acid sequence shown in FIG. 9.
- 2. An isolated polypeptide that least 8 contiguous amino acids of the protein of claim 1.
  - 3. An isolated polypeptide comprising an amino acid sequence which is at least 90% identical to the amino acid sequence shown in FIG. 9 over its entire length.
  - 4. An isolated polynucleotide selected from the group consisting of (a) a polynucleotide having the sequence as shown in FIG. 9, wherein T can also be U; (b) a polynucleotide encoding a STEAP-2 polypeptide whose sequence is encoded by the cDNA contained in plasmid 98P4B6-GTD3 as deposited with American Type Culture Collection as Accession No. PTA-311; and (c) a polynucleotide encoding the STEAP-2 protein of claim.1.
  - 5. An isolated polynucleotide which selectively hybridizes under stringent conditions to a polynucleotide according to claim 4 or its complement.
- 6. An isolated fragment of a polynucleotide according to claim 4 which is at least 20 nucleotide bases in length.
  - 7. An isolated polynucleotide which is fully complementary to a polynucleotide according to claim 4.
- 25 8. An isolated fragment of a polynucleotide according to claim 7 which is at least 20 nucleotide bases in length.
  - 9. A recombinant expression vector which contains a polynucleotide according to claim 4.
- 30 10. A host cell which contains an expression vector according to claim 9.
  - 11. An isolated polynucleotide according to claim 5 which is labeled with a detectable marker.
- 12. A process for producing a STEAP-2 protein comprising culturing a host cell of claim 10—
  35 under conditions sufficient for the production of the polypeptide and recovering the STEAP2 protein from the culture.
  - 13. An antibody which specifically binds to the STEAP-2 protein of claim 1.



- A monoclonal antibody according to claim 13. 14.
- The monoclonal antibody of claim 14 which is labeled with a detectable marker. 15.

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- The monoclonal antibody of claim 14 which is conjugated to a toxin. 16.
- The monoclonal antibody of claim 14 which is conjugated to a therapeutic agent. 17.
- An assay for detecting the presence of a STEAP-2 protein in a biological sample comprising 10 18. contacting the sample with an antibody of claim 15, and detecting the binding of STEAP-2 protein in the sample thereto.
- An assay for detecting the presence of a STEAP-2 polynucleotide in a biological sample, 19. 15 comprising
  - (a) contacting the sample with a polynucleotide probe which specifically hybridizes to a polynucleotide of claim 4 or its complement; and
  - (b) detecting the presence of a hybridization complex formed by the hybridization of the probe with STEAP-2 polynucleotide in the sample, wherein the presence of the hybridization complex indicates the presence of STEAP-2 polynucleotide within the sample.
    - An assay for detecting the presence of STEAP-2 mRNA in a biological sample comprising:

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- (a) producing cDNA from the sample by reverse transcription using at least one primer;
- (b) amplifying the cDNA so produced using STEAP-2 polynucleotides as sense and antisense primers to amplify STEAP-2 cDNAs therein;

(c) detecting the presence of the amplified STEAP-2 cDNA,

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wherein the STEAP-2 polynucleotides used as the sense and antisense primers are capable of amplifying the polynucleotide shown in FIG. 9.

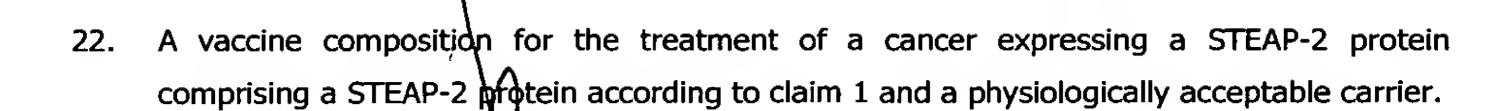
A composition for the treatment of prostate cancer comprising an antibody according to 21. claim 14, 16 or 17, wherein the antibody binds to an extracellular domain of STEAP-2.

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23. A vaccine composition for the treatment of a cancer expressing a STEAP-2 protein comprising an immune genic portion of a STEAP-2 protein according to claim 2 and a physiologically acceptable carrier.

24. An isolated STEAP-3 protein having an amino acid sequence shown in FIG. 10A.

- 10 25. An isolated polypeptide of at least 8 contiguous amino acids of the protein of claim 24.
  - 26. An isolated polypeptide comprising an amino acid sequence which is at least 90% identical to the amino acid sequence shown in FIG. 10A over its entire length.
  - 27. An isolated polynucleotide selected from the group consisting of (a) a polynucleotide having the sequence as shown in FIG. 10A, wherein T can also be U; and (b) a polynucleotide encoding the STEAP-3 protein of claim 1.
  - 28. An isolated polynucleotide which selectively hybridizes under stringent conditions to a polynucleotide according to claim 27 or its complement.
  - 29. An antibody which specifically binds to the STEAP-3 protein of claim 24.
  - 30. A monoclonal antibody according to claim 24.
  - 31. The monoclonal antibody of claim 30 which is labeled with a detectable marker.
  - 32. The monoclonal antibody of claim 30 which is conjugated to a toxin.
- 30 33. The monoclonal antibody of claim 30 which is conjugated to a therapeutic agent.
  - 34. An assay for detecting the presence of a STEAP-3 protein in a biological sample comprising contacting the sample with an antibody of claim 31, and detecting the binding of STEAP-3 protein in the sample thereto.
  - 35. An assay for detecting the presence of a STEAP-3 polynucleotide in a biological sample, comprising

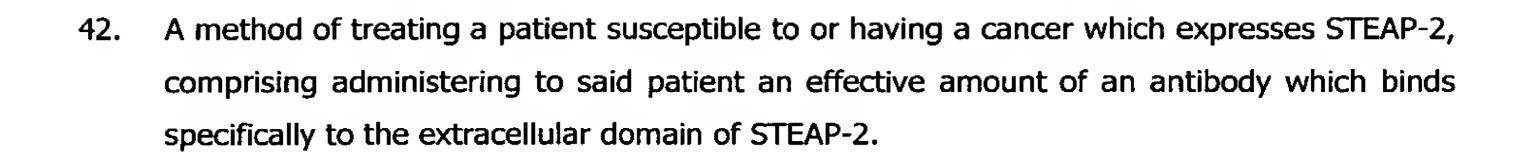
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- (a) contacting the sample with a polynucleotide probe which specifically hybridizes to a polynucleotide of claim 27 or its complement; and
- (b) detecting the presence of a hybridization complex formed by the hybridization of the probe with STEAP-3 polynucleotide in the sample, wherein the presence of the hybridization complex indicates the presence of STEAP-3 polynucleotide within the sample.
- 36. An assay for detecting the presence of STEAP-3 mRNA in a biological sample comprising:
- (a) producing cDNA from the sample by reverse transcription using at least one primer;
  - (b) amplifying the cDNA so produced using STEAP-3 polynucleotides as sense and antisense primers to amplify STEAP-3 cDNAs therein;
  - (c) detecting the presence of the amplified STEAP-3 cDNA,

wherein the STEAP-3 polynucleotides used as the sense and antisense primers are capable of amplifying the polynucleotide shown in FIG. 10A.

- 20 37. A composition for the treatment of prostate cancer comprising an antibody according to claim 30, 32 or 33, wherein the antibody binds to an extracellular domain of STEAP-3.
- 38. A vaccine composition for the treatment of a cancer expressing a STEAP-3 protein comprising a STEAP-3 protein according to claim 24 and a physiologically acceptable carrier.
  - 39. A vaccine composition for the treatment of a cancer expressing a STEAP-3 protein comprising an immunogenic portion of a STEAP-3 protein according to claim 25 and a physiologically acceptable carrier.
  - 40. A method of inhibiting the growth of tumor cells expressing a STEAP-2 protein, comprising administering to a patient an antibody which binds specifically to the extracellular domain of STEAP-2 in an amount effective to inhibit growth of the tumor cells.
- 35 41. The method of claim 40, wherein said antibody is conjugated to a cytotoxic agent.



5 43. The method of claim 42 wherein said antibody is conjugated to a cytotoxic agent.



